Antidepressants rev up neural stem cells

Posted: April 13, 2011

Created: 13/04/2011 - 10:16

Work with neural stem cells suggests that antidepressants such as Zoloft, Prozac and Paxil do their work by encouraging the generation of new brain cells. Happy brain cells, to judge by their effects.

The work was done by British scientists from King's College London's Institute of Psychiatry and published April 12 in in *Molecular Psychiatry*. A Reuters story discusses the role of new brain cells in depression:

> Recent studies have demonstrated that depressed patients show a reduction in a process called neurogenesis -- the development of new brain cells. Researchers believe this reduced neurogenesis may contribute to the debilitating psychological symptoms of depression, such as low mood or impaired memory.

The researchers studied neural stem cells from a part of the brain called the hippocampus. They found that the neural stem cells exposed to Zoloft both produced more stem cells and speeded the development into mature brain cells.

Even more important than seeing the increased stem cells, they figured out which protein in the cell was responsible for the change. The Reuters story quotes Christoph Anacker, a doctorate student who led the study:

> "We discovered that a specific protein in the cell, the glucocorticoid receptor, is essential for this to take place," he explained. "The antidepressants activate this protein which switches on particular genes that turn immature stem cells into adult brain cells."

Knowing the molecular basis for the results could help drug companies develop better drugs for treating depression. This study is another example of the value of stem cells in understanding diseases. While some researchers are working towards ways of transplanting new stem cells into the body to treat disease, others are studying stem cells to better understand diseases and develop better, more effective drugs.

Molecular Psychiatry, April 12, 2011

- A.A.

Tags: depression, Neurobiology